

## REVIEWS

Reinheimer's *Symbiosis*\*

The author's thesis with regard to evolution is that everything normal and sound in organic evolution is due to biologically righteous (*i.e.*, essentially coöperative) behavior, whilst everything abnormal and pathological is due to unrighteous (*i.e.*, fundamentally predatory) behavior. This is not the place to discuss the main thesis of the book, which is not offered as a contribution to botanical literature, but this is the place to note that the book contains numerous statements about plants that are inaccurate or incorrect, and sure to mislead readers not familiar with botany. Thus on page 41 the author refers to a statement by W. C. Worsdell that "the root of the vascular plant is less prone than any other organ to deviate from the normal form," and then adds: "When we bear in mind that . . . the premier industry of the plant . . . consists in the conversion of inorganic into organic material, it seems doubly remarkable that those parts which are most busily engaged upon such industry, though ever so unobtrusively and even shut away from sunlight, are the most robust in health," etc. On page 57 the author says: "I have contended these *ten years* that there is a biological causation of disease. . . ." The italics are the reviewer's. No biologist needs to be reminded that a biological causation of disease was experimentally demonstrated by Pasteur some forty-odd years ago. On the same page we read: "Few would have imagined that the case of hay fever provides an illustration of the biological causation of disease." The very name "hay" fever indicates that such a relationship has been commonly recognized for years.

On page 58 the action of pollen in causing pollinosis is explained on the ground that its "protoplasm is so poor in food values," though it is now common knowledge that so-called "hay fever" may be caused by a great variety of proteins, such as beans, beef, cheese, fowl, fish, whole wheat and others, standing at the top of the list in food value. On the same page pollen

\* Reinheimer, H. *Symbiosis: A socio-physiological study of Evolution*. Pp. xii + 295. Headley Brothers, London, 1920.

grains are referred to as seeds. On page 59 we read that "the large majority of the plants whose pollen give rise to hay fever are worthless weeds," yet the list of well-known offenders in this respect includes such economically important plants as cherry, clover, corn, timothy, rose, and others, and numerous trees of great importance for timber.

Chapter V, *The "intelligence" of plants*, is mainly a commentary on Maeterlinck's essay, *L'intelligence des fleurs*, which the author apparently accepts, *litteratim*. He quotes Maeterlinck's citation of the seeds of the mistletoe, juniper and mountain-ash, "which provide for their dissemination by birds and which, to entice them . . . lurk inside a sweet husk." Maeterlinck interprets this as evidence on the part of the plant, of "a powerful reasoning faculty . . . a remarkable understanding of final causes." Reinheimer (p. 87) challenges anyone "to produce a better and more rational interpretation of these phenomena"; and adds that, "the assumption is by no means fanciful that the plant is also a direct sustainer of animal intelligence. The animal takes in 'knowledge' with its food . . . 'knowledge' which is 'predigested' by the plant." In this connection, it would be malicious to note that, toward the end of the same paragraph, the author quotes Prof. John Dewey as saying that, "it is not we who think in any actively responsible sense; thinking is rather something that happens in us."

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#### Clements's Rocky Mountain Flowers\*

A lady, intensely struck with the wealth of form and coloring of the Texas wild flowers, once wrote me inquiring for a book describing and illustrating this flora in such a way that she could with her all but forgotten elementary botany "spot" their names and learn more about them. I wrote her, regretting the lack of

\* Clements, Frederic Edward and Edith Schwartz Clements. *Rocky Mountain Flowers. An illustrated Guide for Plant-Lovers and Plant-Users.* Field ed. Pp. xxxi + 392. Illustrated. The H. W. Wilson Co., New York. 1920. Price \$4.50.